

Serial No.: 09/926,494
Atty. Docket No.: P67265US0

IN THE CLAIMS:

Please cancel, retain, amend and add the claims as follows:

Claims 1-3. (Canceled).

4. (Previously Presented) A LED as claimed in Claim 35, wherein the microstructure means is generally lateral, such as to extend in a substantially parallel plane to one or more of said plurality of layers.

Claims 5 and 6 (Canceled).

7. (Previously Presented) A LED as claimed in Claim 35, wherein the microstructure means includes many regions of different periodicity to couple out light of different colours.

8. (Canceled).

9. (Currently Amended) A LED as claimed in Claim 35, wherein the microstructure means includes periodic corrugations of microscopic scale in the order of 50-2000 nanometers; ~~more preferably between 100 and 600 nm, more preferably between 350 and 450 nm and ideally~~ 400nm.

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10. (Previously Presented) A LED as claimed in Claim 35, wherein at least one semiconducting layer, or a component thereof, is capable of light emission by luminescence.

11. (Currently Amended) A LED as claimed in Claim 35, wherein the microstructure means is solid and includes one or more ~~such that any or all microstructured layers are continuous~~ microstructured layers.

12. (Previously Presented) A LED as claimed in Claim 35, wherein the microstructure means provides the entirety of at least one of the plurality of layers.

13. (Previously Presented) A LED as claimed in Claim 35, wherein the microstructure means is a diffraction grating.

14. (Previously Presented) A LED as claimed in Claim 35, wherein the microstructure means comprises corrugations in the form of one or more non-planar surfaces or layers and comprises an array of opposed projecting portions.

15. (Previously Presented) A LED as claimed in Claim 14 wherein the depth between corrugation peaks and troughs is of the order five to hundreds of nanometers.

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16. (Currently Amended) A LED as claimed in Claim 15 wherein the depth is between 10 and 200 nm, ~~more preferably between 20 and 120 nm.~~

17. (Currently Amended) A LED as claimed in Claim 14 wherein the corrugations are in the entirety of said one or more layers ~~the layer~~.

18. (Previously Presented) A LED as claimed in Claim 35, wherein the microstructure means comprises areas of modified refractive index.

19. (Currently Amended) A LED as claimed in Claim 18 wherein the areas of ~~portions of the layer with~~ modified refractive index are present within ~~the~~ a layer and are in the form of lines or areas of modified refractive index laterally across the layer.

20. (Previously Presented) A LED as claimed in Claim 35, further comprising at least one organic or organometallic semi-conducting layer.

21. (Original) A LED as claimed in Claim 20 wherein the organic semi-conducting layer comprises a conjugated polymeric material.

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22. (Previously Presented) A LED as claimed in Claim 35, further comprising at least one inorganic semi-conducting layer.

Claims 23-25 (Canceled).

26. (Previously Presented) The method of Claim 41, wherein the adapting step comprises incorporating at least one semi-conducting organic layer with lateral periodic microstructure of suitable period to facilitate coupling of said layers.

27. (Original) The method of Claim 26 wherein the semi-conducting organic layer is coated in a layer by means of spin coating, dip-coating, printing, evaporation or epitaxial growth.

28. (Previously Presented) The method of Claim 41, wherein the microstructure means is produced by embossing, photolithography, microcontact printing or laser holography or by deposition on a microstructured substrate or microstructured contact.

29. (Previously Presented) The method of Claim 28 wherein the microstructure means is created by exposing a photoresist layer to at least one laser beam.

30. (Previously Presented) The method of Claim 29 wherein the microstructure means is then transferred from the photoresist layer to the substrate upon which it is supported.

Claims 31 and 32 (canceled).

33. (Previously Presented) A light-emitting diode (LED) comprising a plurality of layers overlying a silica substrate, said layers including a corrugated photoresist layer overlying said substrate to form a grating, a conducting anode overlying said photoresist layer, a conductive polymer overlying said conducting anode, an emissive layer overlying said conductive polymer, and at least one electrode layer overlying said emissive layer, wherein at least one of the layers overlying said photoresist layer includes periodic microstructure means for manipulating spontaneous emission and propagation of light by coupling non-radiative waveguide modes to far-field radiation.

34. (Previously Presented) The LED of claim 33 wherein said periodic microstructure means includes periodic corrugations.

35. (Currently Amended) A light-emitting diode (LED) comprising a plurality of layers overlying a transparent substrate, said substrate including a corrugated surface forming a grating, said layers including a transparent conductive anode overlying said corrugated surface, a light

emitting layer overlying said conductive anode, and at least one electrode layer overlying said light emitting layer, wherein at least one of the layers overlying said corrugated surface of said substrate includes periodic microstructure means for manipulating spontaneous emission and propagation of light by coupling non-radiative waveguide modes to far-field radiation, at least one of the transparent conductive anode, the light emitting layer and the at least one electrode layer overlying the light emitting layer including a corrugated surface for manipulating spontaneous emission and propagation of light by coupling non-radiative waveguide modes to far-field radiation.

36. (Previously Presented) The LED of claim 35, wherein said substrate includes a photoresist layer having the corrugated surface.

37. (Previously Presented) The LED of claim 36, wherein said substrate includes a layer of silica on which said photoresist layer is disposed.

38. (Previously Presented) The LED of claim 35, wherein a conductive polymer layer is provided between the light emitting layer and the conductive anode.

39. (Previously Presented) The LED of claim 35, wherein the light emitting layer includes a light emitting polymer.

40. (Canceled).

41. (Currently Amended) A method for the production of a light emitting diode (LED), ~~comprising the steps of fabricating wherein a laminar structure is fabricated comprising including~~ a plurality of layers overlying a transparent substrate, said substrate including a corrugated surface forming a grating, said ~~step of fabricating layers~~ including depositing a transparent conductive anode overlying said corrugated surface, depositing a light emitting layer overlying said conductive anode, and depositing at least one electrode layer overlying said light emitting layer, and further comprising the step of adapting the LED to include a corrugated surface in such that ~~there is~~ at least one of said transparent conductive anode, said light emitting layer and said at least one electrode layer, said corrugated surface ~~substantially periodic microstructure means for~~ manipulating spontaneous emission and propagation of light by coupling non-radiative waveguide-modes to far-field radiation.

42. (New) A LED as claimed in Claim 35, wherein the microstructure means includes periodic corrugations of microscopic scale in the order of 100-600 nanometers.

43. (New) A LED as claimed in Claim 35, wherein the microstructure means includes periodic corrugations of microscopic scale in the order of 350-450 nanometers.

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44. (New) A LED as claimed in Claim 35, wherein the microstructure means includes periodic corrugations of microscopic scale in the order of 400 nanometers.

45. (New) A LED as claimed in Claim 15 wherein the depth is between 20 and 120 nm.